

MODE 1 SEQUENCE OF OPERATION: With the occurrence of the first keying pulse the relay output will switch on for 15.5 ± 1 sec. On the leading edge of the fourth keying pulse, the 512.5 ms timer will start. At the end of the 512.5 ms period, the 1 ms and 85 us output pulses will switch on for their respective pulse widths. After 21 keying pulses the sequence will repeat.

MODE 2 SEQUENCE OF OPERATION: With the occurrence of the first keying pulse after the reception of a single cycle input pulse, the sequence of operation is identical with MODE 1. After the completion of the sequence, an additional single cycle input pulse must be received for each additional sequence.




MODE 3 SEQUENCE OF OPERATION: With the occurrence of the first keying pulse 10.5 \pm 1 sec. after initiating MODE 3 operation, the 512.5 ms timer will start. At the end of the 512.5 ms period, the 1 ms and 85 us output pulses will switch on for their respective pulse widths. If a computer reset pulse is not received in 11 \pm 1 keying pulses, the sequence will repeat. If a computer reset pulse is received any time prior to the end of the 512.5 ms period with respect to any of the 10 intermediate keying pulses the 1 ms and 85 us output pulses will switch on for their respective pulse widths and the sequence will repeat.


PIN CONNECTIONS:

- 1 Relay Drive Output
- 2 Mode 1 Input
- 3 Mode 2 Input
- 4 Mode 3 Input
- 5 Keying Pulse Input
- 6 +25 VDC Power Input
- 7 Comp. Reset Input
- 8 Common Return
- 9 512 ms Adjust Res.
- 10 Single Cycle Input
- 12 1 ms Pulse Output
- 13 85 us Pulse Output
- 14 -12 VDC Power Input

1. **INPUT SIGNALS:**
 Mode 1, 2 & 3: $+27.5 \pm 1$ VDC, 50 ma max.; off 0 ± 0.25 VDC.
 Single cycle pulse: $+150 \pm 15$ VDC, 5 ma max., 0.1 to 1.0 sec.; off 0 ± 0.5 VDC.
 Computer reset pulse: -12 ± 2 VDC, 2 ma max., 2.4 to 10 ms; off -0.25 ± 0.25 VDC.
 Keying pulse: $+150 \pm 15$ VDC, 3 ma max., 18 to 25 ms; off 0 ± 1 VDC, 1.0 sec. repetition rate.
2. **OUTPUT SIGNALS:**
 1 ms pulse: $+2.5 \pm 0.5$ VDC, 1K max. imped., 1.0 ± 0.12 ms; off -12 ± 0.5 VDC, 3K max. imped., 1.0 us max. rise and fall time.
 85 us pulse: -12 ± 0.5 VDC, 400 ohm max. imped., 85 \pm 15 us; off 0 ± 0.5 VDC, 1.0 us max. rise and fall time.
 Relay drive: Switch to ground, 60 ma max. load, 0.8 VDC max. switch drop; off 0.25 ma max. leakage at 28 VDC.
3. **512.5 ms TIMER:** 512.5 ms \pm 1% variation. Externally adjustable to 512.5 ms \pm 0.5 ms repeatability.
4. **INPUT POWER:** +25 VDC \pm 2%, 100 ma max.; -12 VDC \pm 2%, 50 ma max.
5. **TEMPERATURE RANGE:** Operating, $+15^\circ\text{C}$ to 45°C ; non-operating, -10°C to $+75^\circ\text{C}$.
6. **SHOCK AND VIBRATION:** 900 G's for 11 ms; 50 G's 10 to 2000 cps.
7. **VOLTAGE BREAKDOWN AND INSULATION RESISTANCE:** 500 VRMS, all pins to case; 500 megohms, each pin to case.
8. **WEIGHT AND FINISH:** 5 oz. max.; nickel plate.

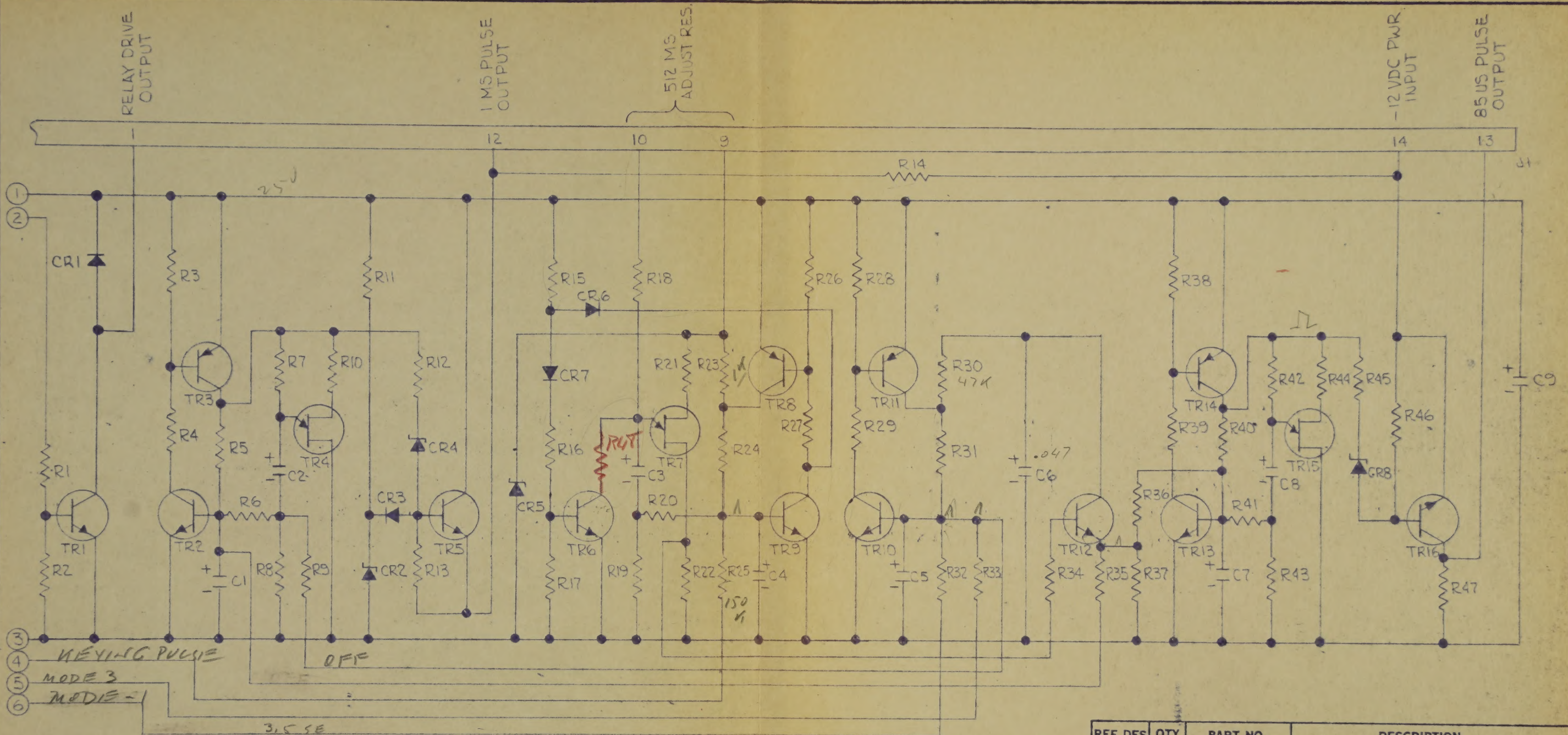
3 FOR WIRING DIAGRAM: 100269
 2 FOR COMPONENT ASSY: 100268
 1 FOR SCHEMATIC: 100267
 NOTES:

REF DES	QTY	PART NO.	DESCRIPTION
DR <i>Carole Amble</i>	4/8/64	 Parko ELECTRONICS COMPANY SANTA ANA, CALIF.	NETWORK TIMING UNIT
CHK <i>Lucas</i>	4/10/64		
DSGN			
PROJ			
REL		 APPROVED	CODE IDENT NO. 13979 SIZE B 100266 REV
MACH SURF 	DO NOT SCALE DRAWING	SCALE 1/1	SHEET 1 OF 1



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<https://archive.org/details/100266networktim00unse>



1. PREFIX ALL REF DES WITH A2; EXAMPLE AZTR1
NOTES:

DIMENSIONS ARE
IN INCHES AND
AFTER PLATING

TOLERANCES
(UNLESS OTHERWISE
SPECIFIED)

.X $\pm .1$
.XX $\pm .03$
.XXX $\pm .010$
ANGLES $\pm 0.5^\circ$

MACH
SURF



REF DES	QTY	PART NO.	DESCRIPTION
DRC	5	2264	
CHK	6/4/69		
DSGN			
PROJ			
REL			
APPROVED			
APPROVED			
DO NOT SCALE DRAWING			

PART NO.		DESCRIPTION	
Parko		ELECTRONICS COMPANY SANTA ANA, CALIF.	
SCHEMATIC- NETWORK TIMING UNIT			
CODE IDENT NO.	SIZE	REV	
13979	B	100267	A
SCALE	SHEET 3 OF 3		

A4 7-15-69

100267 SHEET 3 (TOP DWG 100266)

JUL 16 1969

Parko

ELECTRONICS COMPANY, INC.

ENGINEERING DRAWING CHANGE RECORD

TOP DRAWING NO. 100266

SHEET OF

DRAWING NO.	REV	CHG	DESCRIPTION OF CHANGE	SIG/DATE
100266				
100267 SH1	A	5	ADDED AI-C9 ADDED 80001 INSERT	9-15-67
SH2	A	4	ADDED AI-C9	
SH3	A	4	RELOCATED CR12 WAS: CR12(-) TO TRI-C & J1-1 & CR14(+) TO J1-4 (common)	7-15-69
100268 SH1	A	4	ADDED AI-C9 TO HOLE 69	9-15-67
SH2	A	4	REVERSED POLARITY OF CR1 WAS: $\begin{matrix} \text{A2TB1} & \text{A2TB2} \\ \text{(+)} & \text{(-)} \end{matrix}$	7-15-69
100269 SH 1	NC	1	ADDED AI-C9 TO AI-TB1 & AI-TB2	9-15-67
SH 1	NC	2	REVISED WIRING TO INCORPORATE ABOVE CHG	7-15-69

TOP

100266

61M
+
50H
(3 sheets)

COMP
ASSY
(2 sheets)

WIRING
(2 sheets)

Parko

ELECTRONICS COMPANY, INC.

ENGINEERING DRAWING CHANGE RECORD

TOP DRAWING NO. 100266

SHEET OF

DRAWING NO.	REV	CHG	DESCRIPTION OF CHANGE	SIG/DATE
100266				
100266	7SH1	A	5 ADDED AI-C9 ADDED 30001 INSERT	9-15-67
	SH2	A	4 ADDED A-C9	
	SH3	A	4 RELOCATED CR1; WAS: CR1(-) TO TRI-C & J1-1 & CR1(+) TO J1-4 (common)	7-15-69
100268	SH1	A	4 ADDED AI-C9 TO HOLE 69	9-15-67
	SH2	A	4 REVERSED POLARITY OF CR1 WAS: A2TB1 A2TB2 (+) (-)	7-15-69
100269	SH 1	NC	1 ADDED AI-C9 TO AI-TB1 & AI-TB2	9-15-67
	SH 1	NC	2 REVISED WIRING TO INCORPORATE ABOVE CHG	7-15-69

TOP

LINE

ELM

1

SH

(3 sheets)

COMP
ASSY

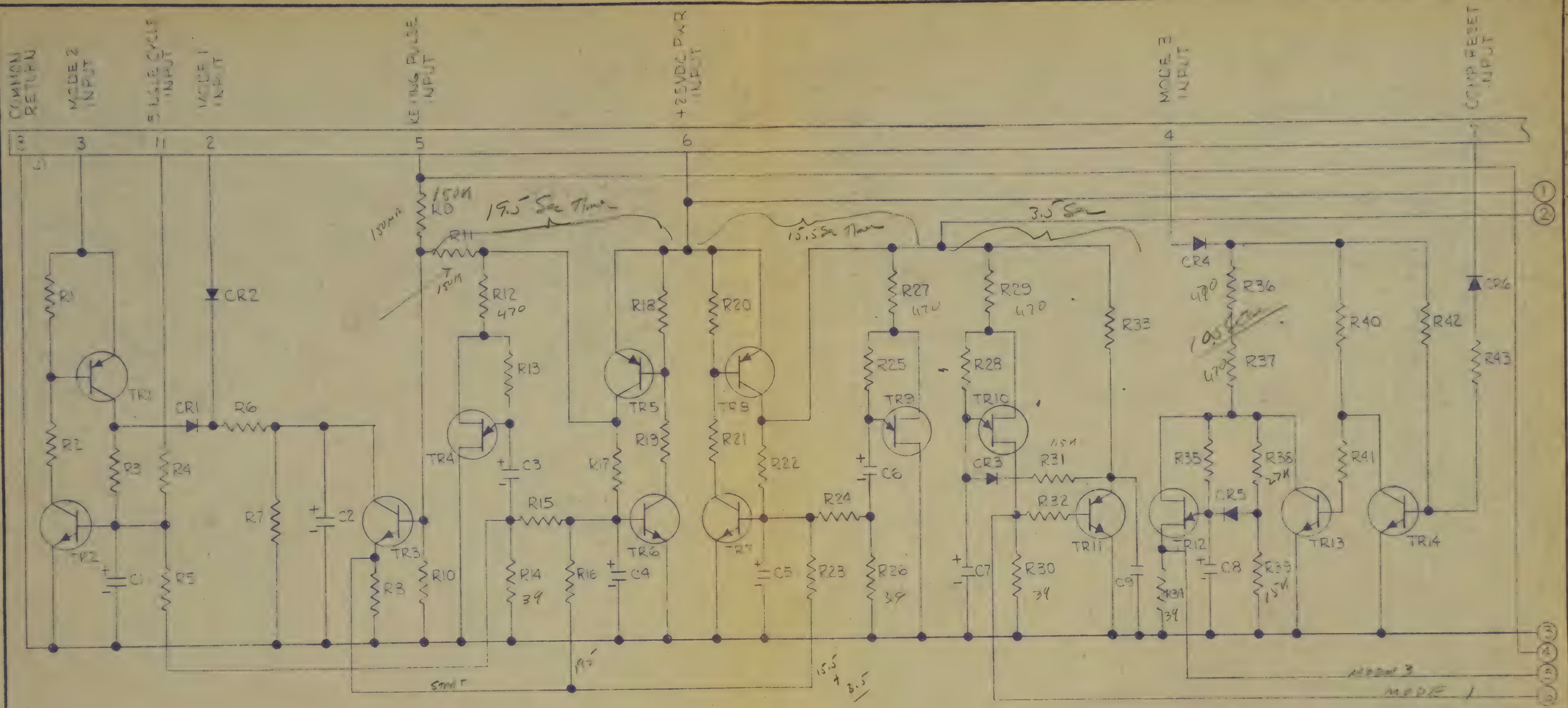
(2 sheets)

WIRING

(2 sheets)

F

1



FIRST
 PULSE
 GATE
 A1
 600K

1. CHECK ALL REF DES WITH A: EXAMPLE AITRI
 NOTES:

REF DES	QTY	PART NO.	DESCRIPTION
DRC	1	5-2344	Parko
CHK	1	6/4/68	ELECTRONICS COMPANY SANTA ANA, CALIF.
DSGN			
PROJ			
REL			
APPROVED			
APPROVED			
DO NOT SCALE DRAWING	SCALE —	CODE IDENT NO. 13979	SIZE B
		SHEET 1 OF 1	REV 1

Parko

ELECTRONICS COMPANY, INC.

FUNCTIONAL INSPECTION RECORD

DATE MAY-7-92 SHOP ORDER NO. 5105

PARKO PART NUMBER 100266 (NC) CUSTOMER PART NUMBER(Ref. 447-0156-001)

CUSTOMER & P.O. NUMBER NAVAL SUPPLY CENTER N00621-92-M-KH73

APPLICABLE SPECIFICATIONS ES 319

Serial Number	Dielectric Strength 500V RMS min.	Insulation Resistance 500 Meg.Min @ 500 VDC	Mode 1 Sequence	Mode 1 Relay Timing	Relay OFF Leakage	Relay Switch Drop
1	0.1V	0.1V	0.1V	15.68SE	0.0MA	0.11V
2	0.1V	0.1V	0.1V	15.90SE	0.0MA	0.12V
Serial Number	Repeat Cycle Duration	512.5 ms Timing with 25K	1 ms Pulse Width	1 ms OFF Volts	1 ms ON Volts	85 us Pulse Width
1	21 CYC	508.7ms 50.7ms	1.01ms	-12.0V	+2.5V	87.9ms
2	21 CYC	516.0ms	1.02ms	-12.0V	+2.5V	86.8ms
Serial Number	85 us OFF Volts	85 us ON Volts	Mode 2 Sequence	Mode 3 Sequence	Mode 3 Sequence Repeat	Mode 3 Computer Reset
1	0.0V	-12.0V	0.1V	0.1V	10.38SE	0.1V
2	0.0V	-12.0V	0.1V	0.1V	10.25SE	0.1V

7-30-65
8-24-67

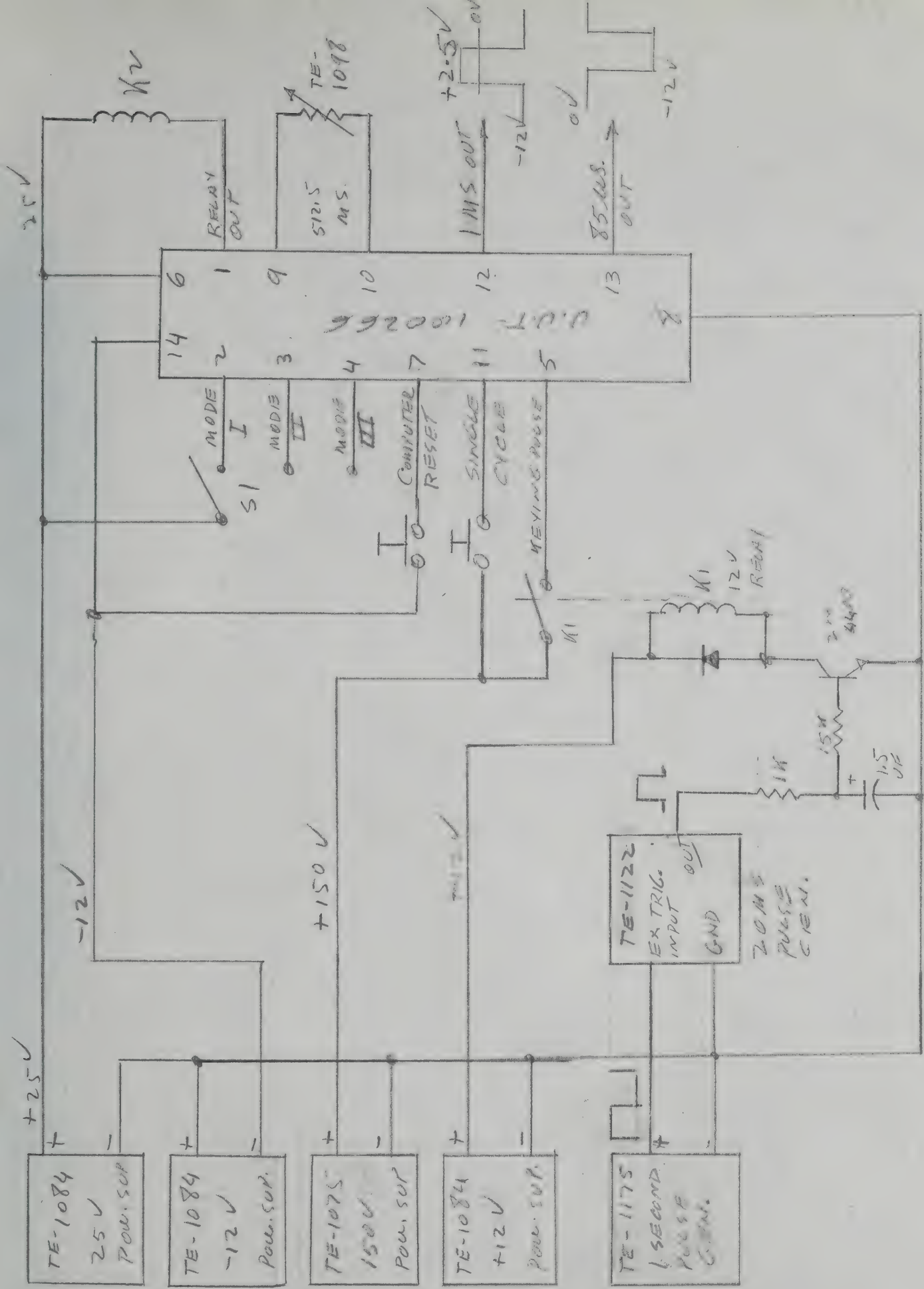
Parko

ELECTRONICS COMPANY, INC.

FINAL INSPECTION RECORD

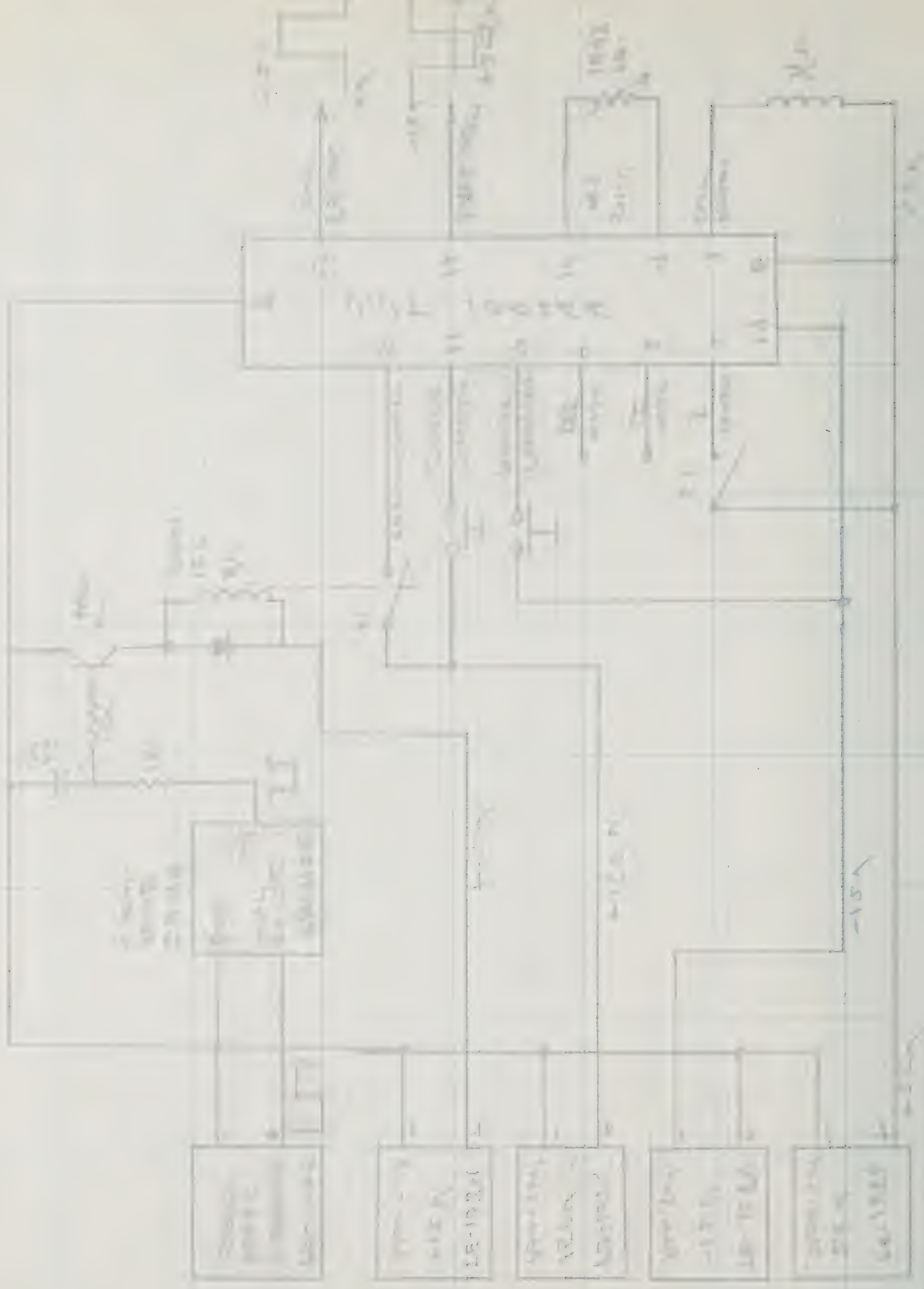
DATE MAY-12-92 SHOP ORDER NO. 5105
 PARKO PART NUMBER 100266 (NC) CUSTOMER PART NUMBER (Ref. 447-0156-001)
 CUSTOMER & P.O. NUMBER NAVAL SUPPLY CENTER N00612-M-KH73
 APPLICABLE SPECIFICATIONS ES 320

Serial Number	Dielectric Strength 500 V RMS Minimum	Insulation Resistance 500 meg. @ 500-VDC	Mode 1 Sequence	Mode 1 Relay Timing	Repeat Cycle Duration	Relay Switch Drop
1	0.11	0.14	0.11	15.56	21.04	0.091V
2	0.11	0.11	0.11	15.62	21.04	0.101V
Serial Number	512.5 ms Timing 0 Reset	512.5 ms Timing 24.71	1 ms Pulse Width	1 ms OFF Volts	1 ms ON Volts	85 us Pulse Width
1	471.7ms	512.5ms	1.02ms	-12V	+2.50V	88.4us
2	479.1ms	512.5ms	1.02ms	-12V	+2.50	87.6us
Serial Number	85 us OFF Volts	85 us ON Volts	Mode 2 Sequence	Mode 3 Sequence	Mode 3 Sequence Repeat	Mode 3 Computer Reset
1	0V	-12V	0.11	0.11	11PUL. 0.11	0.11
2	0V	-12V	0.11	0.11	11PUL. 0.11	0.11



APPENDIX III - ES-0266

Figure 1: Block diagram of the system



PARTS LIST & TRACEABILITY RECORD

DATE _____ PARKO P/N 100266 (NC) CUSTOMER P/N (Ref. 447-0156-001) SHOP ORDER NO. _____

CUSTOMER & P.O. NO. _____ QTY _____ S/N _____ THRU _____

REF. DES.	P/N	DESCRIPTION	QTY PER UNIT	TOTAL QTY	INSP	VENDOR/MFR	PARKO P.O. NO.	LOT
		.015" thick	1					
		Teflon Insulation	1					
		M/FHU6729-CA-ST Cover	1			14 term holes & 4 insert holes Hudson 90001 2-56 inserts (4)		
		3311146-AAA-30W-SS Mod.A	14			E. V. Roberts/Elec. Industries		
		Insert						
		HU6720-15/16-ST Can	1			Hudson		
TB1								
TB2	M/F169P59/032	Terminal Board	2			Weatherford/Vector		
		#24 AWG	1					
		Feed thru wire	1					
		#22 AWG	4					
		Feed thru wire						
R42	RC07	Resistor, 56K	1					
R39	RC07	Resistor, 15K	1					
R33	RC07	Resistor, 5.6K	1					
R14, 26, 30, and 34	RC07	Resistor, 39 ohm	4					
R12, 27, 29, 36 and 37	RC07	Resistor, 470 ohm	5					
R10, 38 and 40	RC07	Resistor, 27K	3					
R8	RC07	Resistor, 150 ohm	1					
R7	RC07	Resistor, 100K	1					
R6	RC07	Resistor, 47K	1					
R4, 9 and 11	RC07	Resistor, 150K	3					
R2, 3, 17, 19, 21, 43	RC07	22 and Resistor, 10K	7					
R1, 5, 15, 16, 18, 41	RC07	20, 23, 24, 31, 32 and Resistor, 1.5K	11					

Ref. AI Des. - Page 2 of 2

NO OTHER ADDITION

—

REF. DES.	P/N	DESCRIPTION	QTY PER UNIT	TOTAL QTY	INSP	VENDOR/MFR	PARKO P.O. NO.	LOT
CRI, 2, 6	3, 4, 5, and 1N483B	Diode	6			SIN645-1		
C3, 6, 7, 8	and 109D156X0030C2	Capacitor 15/30V	4			M 39006/08-8503		
C2 C1, 4, and 5	150D105X0035A2 150D154X0035A2	Capacitor 1.0/35V Capacitor .15/35V	1 3					
TR11 TR4, 9, 12	100284-2 100283-2	SCR (3E1053) Transistor (2N2646)	1 4			SSPI AA114 G. E. 2N4949 selected		
TR3, 13 14	and 2N731	Transistor	3			2N2222H check price		
TR2, 6 and 7	and 2N730	Transistor (or 2N731)	3			" " "		
TR1, 5 and 8	and 2N722	Transistor (or 2N2907)	3					
C9 R13, 25, 35	MC80V102AM and RN60D	Capacitor 1001/100V Timing Resistors	1 do not load			Aerovox C4412 BX102K		

PARTS LIST & TRACEABILITY RECORD

DATE _____ PARKO P/N _____ 100266 (NC) _____ CUSTOMER P/N (Ref. 447-0156-001) _____ SHOP ORDER NO. _____

CUSTOMER & P.O. NO. _____ QTY _____ S/N _____ THRU _____

REF. DES.	P/N	DESCRIPTION	QTY PER UNIT	TOTAL QTY	INSP	VENDOR/MFR	PARKO P.O. NO.	LOT
TR1	M/F169P59/032	Terminal Board	2			Weatherford/Vector		
TR2	#24 AWG	Feed thru wire	2					
	#22 AWG	Feed thru wire	7					
R17	RN60D	Resistor, 511 ohm	1					
R14	RN60D	Resistor, 750 ohm	1					
R13 and R23	RC07	Resistor, 1K	2					
R10	RC07	Resistor, 390 ohm	2					
R14	RC07	Resistor, 5.6K	4					
R1, 11, 16	RC07	Resistor, 10K	10					
R8, 19, 22	RC07	Resistor, 39 ohm	3					
R43	RC07	Resistor, 100 ohm	1					
R37	RC07	Resistor, 150 ohm	1					
R30	RC07	Resistor, 47K	1					
R25	RC07	Resistor, 150K	1					
R4, 5, 15, 24, 27, 29, 45	RC07	Resistor, 31, 39, 40 and Resistor, 10K	10					
R2, 3, 6, 9, 17, 20, 26, 28, 32, 33, 34, 35, 36, 38, 41 and 46	RC07	Resistor, 1.5K	16					
CR5	1N967B	Diode, Zener, 18.0V	2					
CR4	1N965B	Diode, Zener, 15.0V	1					
CR2	1N746A	Diode, Zener, 3.3V	1					
CR1, 6 and 7	1N483B	Diode	3					
CR3	1N914	Diode	1					

51N645-1

51N4148-1

PARTS LIST & TRACEABILITY RECORD

DATE _____

PARKO P/N 100266 (NC)

CUSTOMER P/N (Ref. 447-0156-001)

SHOP ORDER NO. _____

CUSTOMER & P.O. NO.

QTY

 S/N

THRU

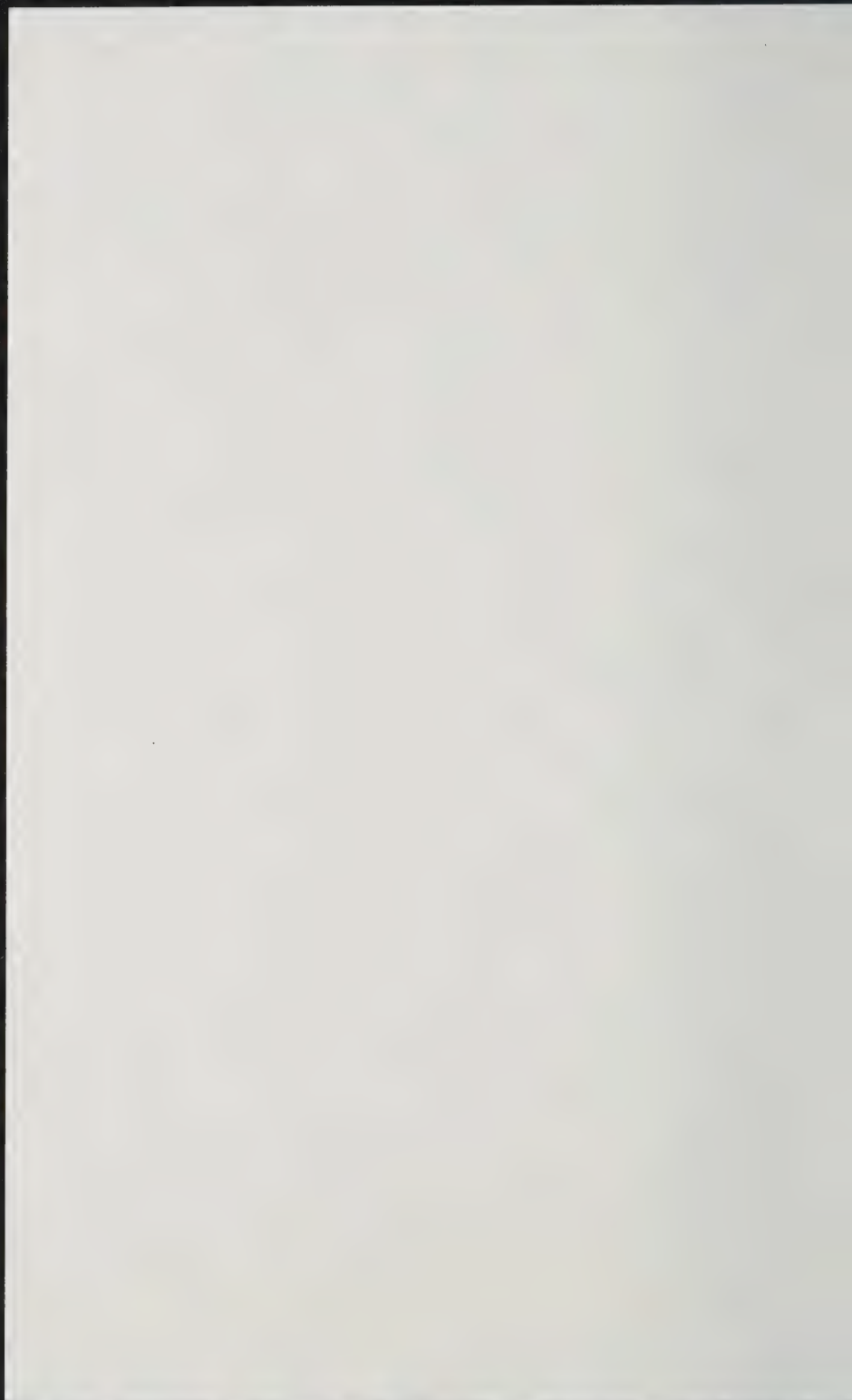
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T127 T1011 (512001)

T.C. R21 = 383-12

RWTT

UNIFORMITY



100266 - 3-4-92

2N2222A TRANSISTORS SELECTED

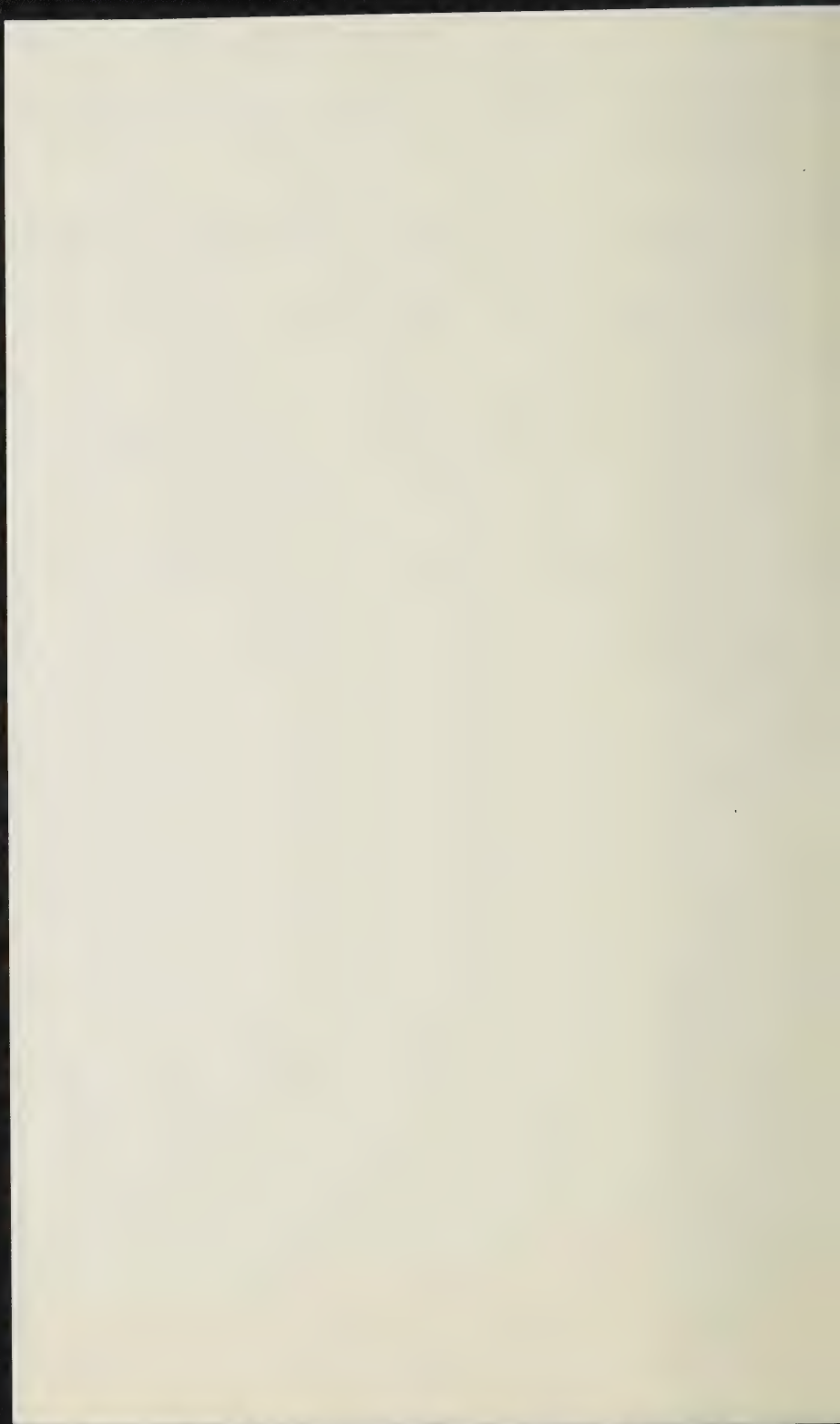
FOR GAIN OF ≈ 225

TURN ON TIME = 175 ns.

TURN OFF TIME = 300 ns.

RISE TIME = 200 ns.

FALL TIME = 200 ns



MODE 1

1ST KEYING PULSE - STARTS 1515 SEC. TIMER
STARTS 1515 " " " "
PULLS RELAY IN
STARTS 3.5 SEC. TIMER

AT END OF 3.5 SEC. TRI1 SCIR 'ON'
AND LOCAL 'DEF' 'ON'

EVERY KEYING PULSE STARTS THE 512 MS
TIMER - AT THE END OF 512 MS IT TURNS
ITSELF OFF, AND PULSES TRI2. AFTER
3.5 SEC - TRI2 POWER IS APPLIED AND 85 MS.
PULSE IS GENERATED.

ALSO THE TIME OUT CAN BE ADJUSTED, AND
TURN OFF POWER TO TRI2.

TE.

RELAY IS TURN OFF AFTER 1515 SEC.
AFTER 1515 SEC. TIMER 3.5 SEC. STARTS
STARTS AGAIN WITH FIRST KEYING PULSE

MODE 1. SEQUENCE

SET THE EQUIPMENT PWR APPROX 111.
ADJUST KEYING PULSE GEN. TO A PW OF
22 MS AND PRR OF 1 SEC \pm .
 ± 3 MS.

CLOSE SW-1 -

START KEYING PULSE GENERATOR - AT THE
FIRST KEYING PULSE A TIME 512 MS
PULL IN, AND THE 612 MS. TIMER WILL
START WITH THE KEYING PULSE. AT THE END
OF THE ~~FIRST KEYING PULSE~~ 512 MS
WITH THE FOURTH KEYING PULSE THE 85 MS.
AND 1 MS. PULSE OUTPUTS WILL COME THRU.
AFTER 21ST KEYING PULSE - THE SEQUENCE

WITH FURTHER AS LONG AS IT IS COILED.

THE ROPE WILL SHOOT AT THE END
OF THE END.

MEASURED 1005 FEET WIDTH AND 1005,
3005 FEET WIDTH AND 1005,
2005 FEET WIDTH.
1005 FEET WIDTH WITH 1005
FROM SWATH DEEP (1005)
LEAKAGE (1005)
REPEAT STEVENSON.
USE CENTER AND OR 1005.

DIRECTIVE - 500 IRMS

INDUCTION R. - 500 MCG / 5000.

TWO POWER SUPPLIES +25V / 100MA (2.5)
-12V / 50MA

ONE POWER SUPPLY +150V = 15V / 300A
SINGLE CYCLE
0.1 TO 1.0 SEC.

COMPUTER RESET PULSE ~12

KEYING PULSE 150 ± 15V

18 TO 25 MS. 1.0 S PRR.

~~TE-1182 SCOPE - GOULD 4030~~

~~TE-1185 COUNTER HP 5316~~

~~TE-1176 METER - FLORE 8600A DVM~~

~~TE-1122 TYPE 114 TECHTRONIC PULSE GENERATOR~~

~~TE-1175 3311A HP " "~~

TE-1015 - METER - SIMPSON 270

TE-1075 - P.S. - HP 6202B.

~~TE-1084 - P.S. - HP 6218A - (2 NEEDED)~~

~~TE-1149 - AIR - HYPOT~~

~~TE-1150 - GR - MEGOHMMETER~~

FIELD VALUE OF 1231 

100266

5-23-70

PRE-TIME A1-TR4 = 19.5 SEC

A1-TR10 = 3.5 SEC.

WITH VOLTAGE
PULSE 2

A1-TR12 = 10.5 SEC

A1-TR9 = 15.5 SEC.

A2-TR7 = 512 MS. - SELECT

R18 WITH 50K EX-
TERNAL RESISTOR =

(25K = 512 MS)

AFTER ASSY = A2-TR4 = 1MS

A2-TR15 = 85MS

100266

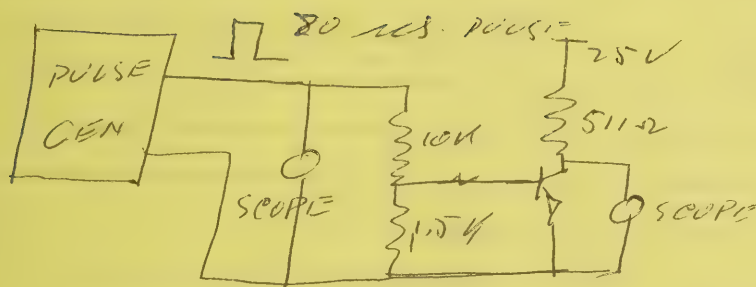
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TRG & TRIG - 2N834.

2N2222A WERE SELECTED AS SUBSTITUTES. GAIN 2225
SELECTED FOR LOWEST TURN ~~ON~~ AND TURN OFF TIME.
AND RISE AND FALL TIME.

2N834 MEASURED: TURN OFF TIME = 50 ns.
TURN OFF TIME = 120 ns.
RISE TIME = 200 ns
FALL TIME = 200 ns.

2N2222 SELECTED! TURN ON TIME = 100 ns.
TURN OFF TIME = 275 ns.
RISE TIME = 200 ns.
FALL TIME = 200 ns.



1N645 SELECTED TO SUBSTITUTE 1N483B FOR
LOWEST REVERSE VOLTAGE LEAKAGE



READINGS WERE 20 TO 30 MV ACROSS
10 MEG = 2 TO 3 mA

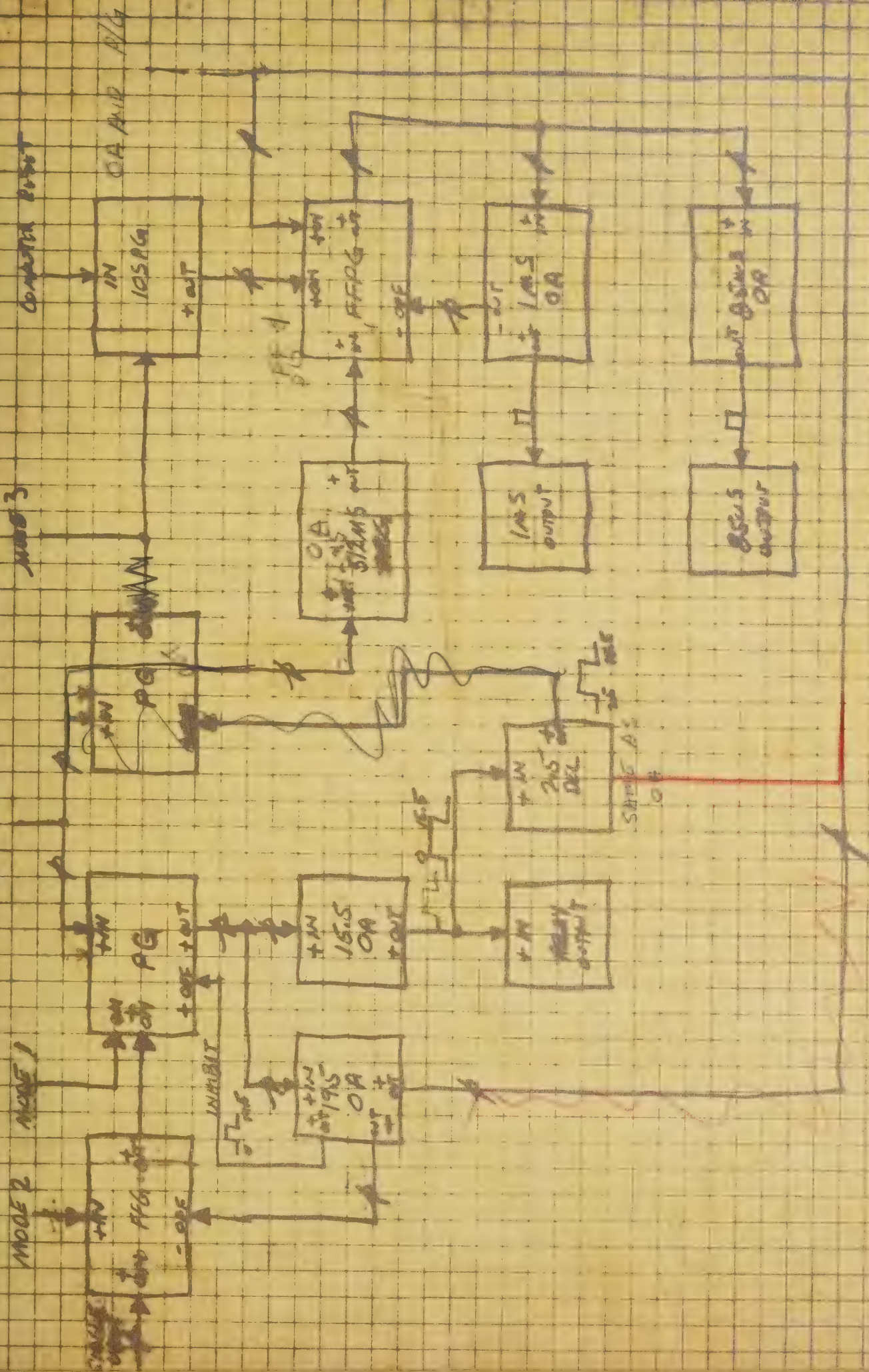
715

mode 2	mode 1
--------	--------

卷之五

三

Constant Point



+250°C ROOM

B2-B1 RESIST.	SENSIT.	W/348-2 T.C.	W/O-2 T.C.
#1 - 6.35K	- <10V	514.8 MS (12.0)	578.5 MS (45.4)
#2 - 7.55K	- "	521.4 MS	576.6 "
#3* - 6.9K	- "	526.3 "(8.8)	589.2 "(30.8)
#4 - 7.85K	- "	566.5 "(16.7)	628.8 "(38.6)
#5 - 6.45K	- "	598.4 "	684.2 "
#6* - 8.8K	- "	544.4 "(1.4)	594.3 "(12.0)
#7 - 5.5K	- "	510.2 "	582.2 "

+250°C

#1	492.8 MS	533.1 MS
#2	507 ERRATIC	544.0 "
#3	517.5 MS	558.4 "
#4	549.8 "	591.2 "
#5	642.8 "	712.4 "
#6	543.0	582.3 "
#7	INOPERATIVE	552.7 "

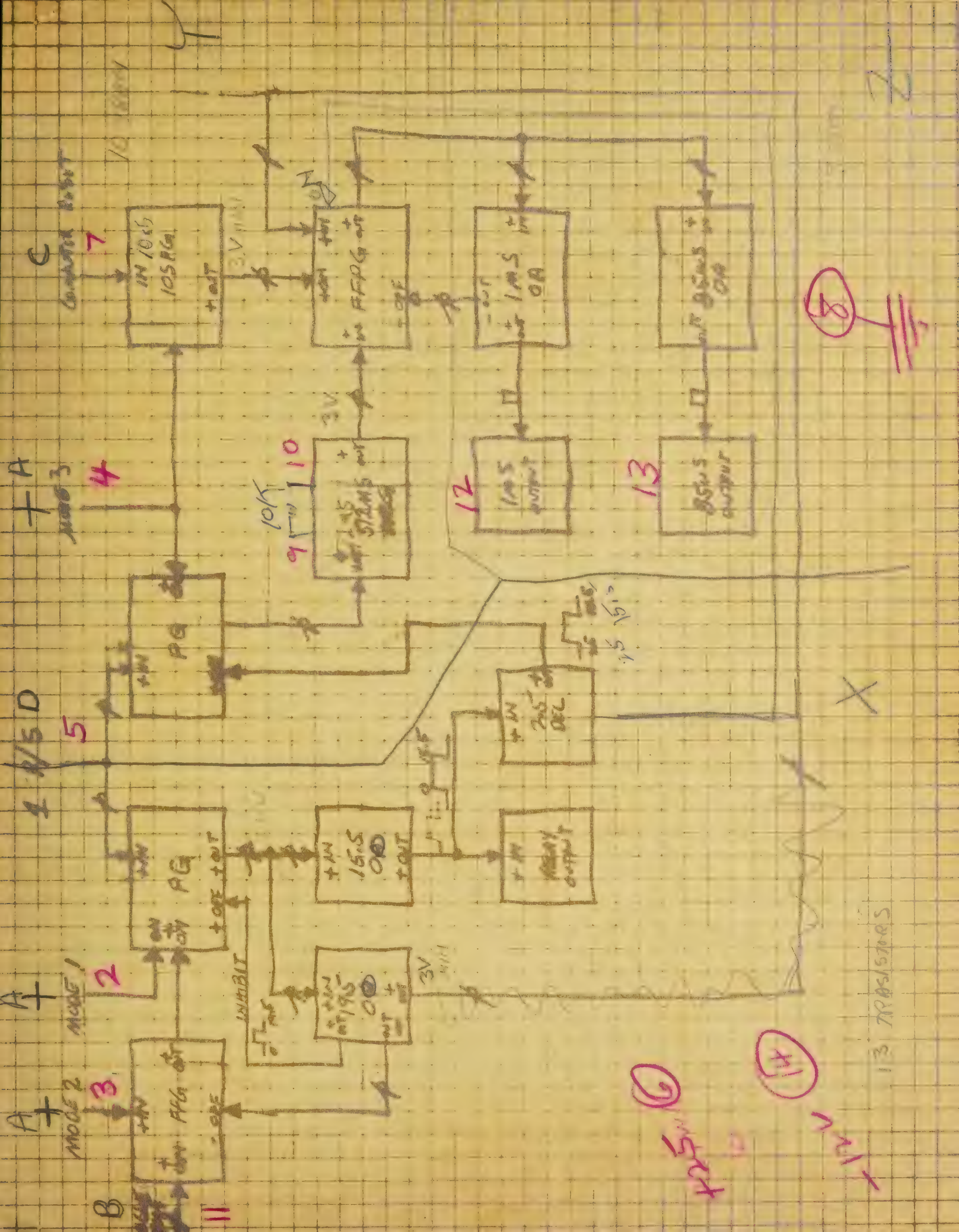


Photo Electronics

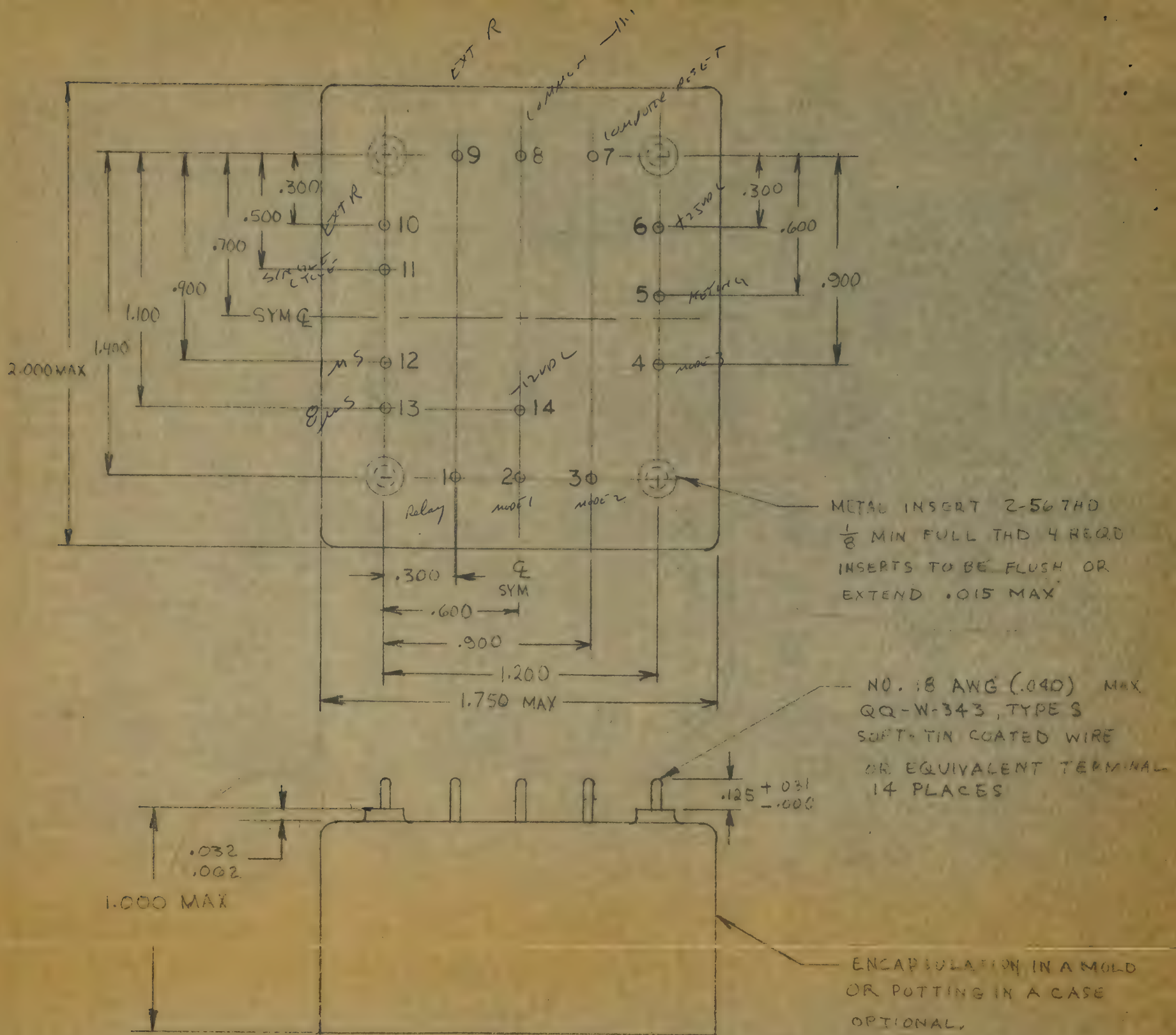
012224

Parish 245-5

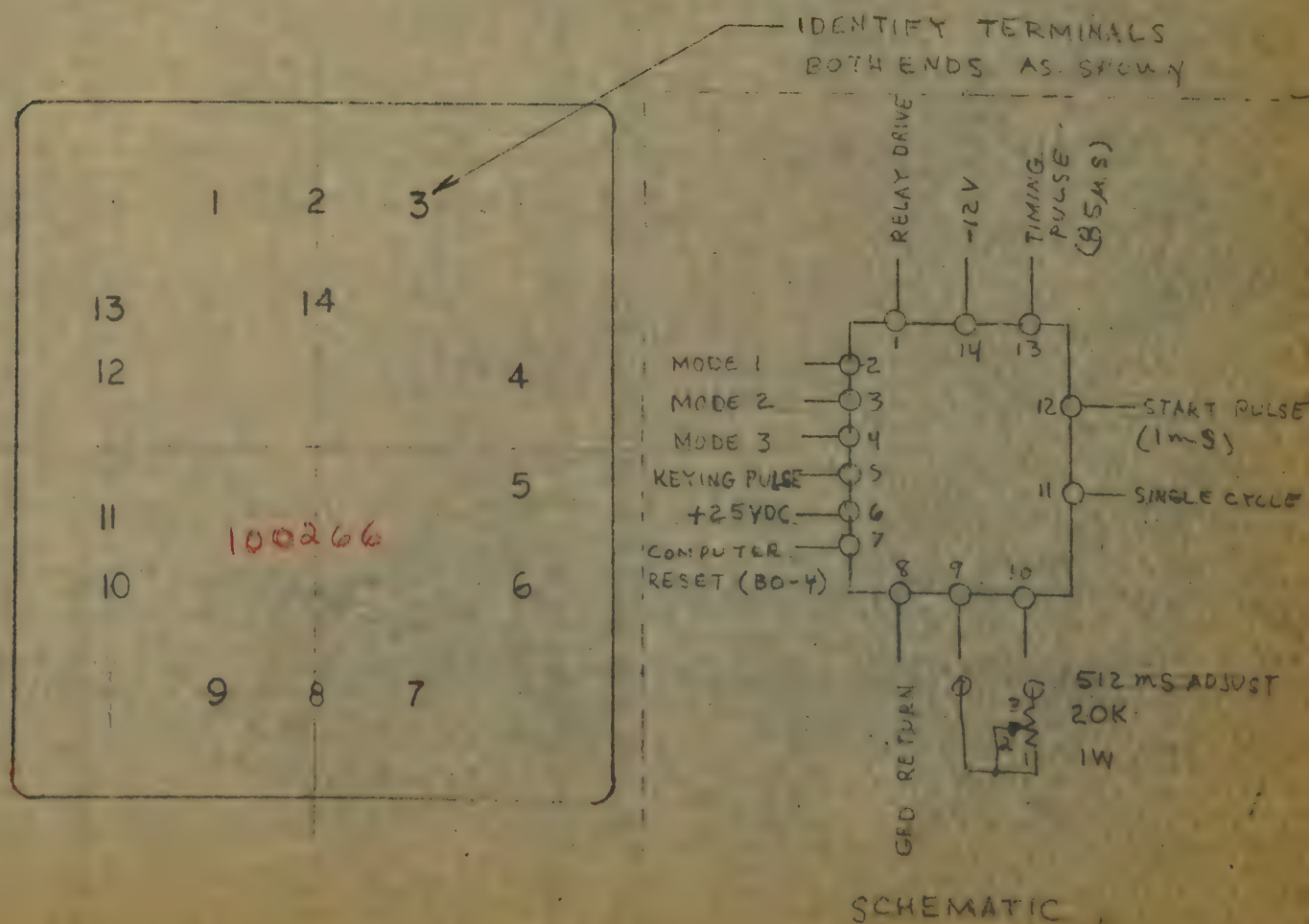
881C #135307

Parish 245-5

CONTROLLED PRINT



NETWORK TIMING UNIT
PARKER ELECTRONICS



ELECTRONICS COMPANY

Date _____ Shop Order No. _____

Parko Part No. _____ Customer Part No. _____

Customer P.O. No. _____

Applicable Specifications

[illegible]

ELECTRONICS COMPANY

Date _____ Shop Order No. _____

Parko Part No.	Customer Part No.
----------------	-------------------

Customer P.O. No.

Applicable Specifications

[illegible]

ELECTRONICS COMPANY

Date _____ Shop Order No. _____

Parko Part No. _____ Customer Part No. _____

Customer P.O. No. _____

Applicable Specifications

[illegible]

INTERNAL LETTER
WHITE HOUSE AVIATION, INC.

100-1-1-31

DATE

February 24, 1964

TO
ADDRESS

Those Listed

FROM
ADDRESS

J. K. Parish
D/245-5 B/72 ANA

PHONE

4061

Working Specification for Electronic Equipment - NAVCET

1. Component Title: Network Timing Unit
2. Part No: Parko Electronic #100266
3. System Usage: Contract: NAVCET Instructor's Console
No. Req'd: 1 unit per system

4. Function:

The Network Timing Unit, Part No. 100266, is a compactly packaged module which is to be mounted on an etched circuit board. The unit provides electrical interface between tactical equipment and a digital computer and also interface to other tactical equipment.

5. Input Signals:

A. Mode Signals: 1, 2, & 3

False State: 0 ± 0.25 v dc, open circuited or 250 ohms impedance to ground. ✓

True State: 27.5 ± 1.0 v dc, peak-to-peak ripple less than 0.4 volts. Maximum load current shall be less than 200 ma.

Contact Bounce: 2 milliseconds maximum.

B. Single Cycle:

False State: 0 ± 0.5 v including peak-to-peak noise, open circuited impedance greater than 1 megohm.

True State: $+150 \pm 15$ v dc, peak-to-peak ripple less than 1.0 volt. Maximum load current shall be less than 10 ma.

Pulse Width: 0.1 to 1.0 seconds

Contact Bounce: 2 milliseconds maximum.

C. Computer Reset:

False State: -0.25 ± 0.25 v dc, source impedance of 470 ohms $\pm 10\%$. Maximum load current shall be less than 2 ma.

To: Those Listed
From: J. K. Parish
Subject: Working Specification for Electronic
Equipment - NAVCET

Doc 64-245-5-32-33
2/24/64
Page 2

True State: -12 ± 2.0 v dc, source impedance of 450 ohms $\pm 10\%$.
Maximum load current shall be less than 2 ma.

Pulse Width: 2.4 to 10.1 milliseconds. Rise and fall times less than
1 microsecond.

D. Keying Pulse:

False State: 0 ± 0.5 v including peak-to-peak noise, open circuited
impedance greater than 1 megohm.

True State: $+150 \pm 15$ v dc, source impedance during Mode 1 and Mode 2
conditions shall be 470 ohm $\pm 10\%$. Source impedance during
Mode 3 shall be an 0.5 henry $\pm 10\%$ choke in series with an
 $8.2K \pm 10\%$ resistor. The choke has an arc suppression
diode in parallel with the coil.

Pulse Width: 18 to 25 milliseconds

Pulse Repetition Rate: 1 ± 0.05 cps

Contact Bounce: Less than 2 milliseconds

6. Output Signals:

A. Relay Drive

False State: Open circuited, leakage current less than 0.25 ma at
 $+28$ v dc.

True State: Short circuit, voltage drop less than 0.8 v dc at 60 ma
maximum load current.

B. 1 Millisecond Pulse

False State: -12 ± 0.5 v dc, source impedance less than 4K ohms

True State: $+2.5 \pm 0.5$ v dc, source impedance less than 1K ohms

Pulse Width: 1.0 ± 0.12 milliseconds

Rise and fall time: less than 1.5 microseconds

C. 85 Microsecond Timing Pulse

False State: -1 to $+6$ v dc, source impedance less than 1K ohm

True State: -11 to -20 v dc, source impedance less than 400 ohm

Pulse Width: 85 ± 15 microseconds

Rise and fall time: less than 1.0 microsecond

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From: J. K. Parish
Subject: Working Specification for Electronic
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7. Operational Requirements

Mode lines 1, 2, and 3 define the three basic operating modes of the unit. Only one mode line is true at any time.

A. If Mode 1 is true:

- (a) With the occurrence of the first keying pulse, switch the Relay Drive Output from false to true.
- (b) On the leading edge ($-0, +50$ us) of the fourth keying pulse, count the pulse of Part A (a) as number 1, start a 512.5 ms timer. At the end of the 512.5 ms period, the 1 ms and 85 us timing pulse outputs shall come true for their respective pulse width.
- (c) At the same time the 512.5 ms timer is started, start a 12.5 ± 1.0 sec timer. At the end of the 12.5 sec time period, switch the Relay Drive output line to the false state. $\rightarrow 15.5$
- (d) 19.5 ± 1.5 sec after the leading edge of the first keying pulse, return to the beginning of the program and test the three mode lines to determine the proper mode for the next operating sequence.

B. If Mode 2 is true:

- (a) Test the Single Cycle input line for a true state.
- (b) When this line comes true, proceed to Part A (a) of Mode 1. All additional steps of Mode 2 are identical to Mode 1.

C. If Mode 3 is true:

- (a) On the leading edge ($-0, +50$ us) of the first keying pulse, start the 512.5 ms timer. At the end of the 512.5 ms period, the 1 ms and 85 us timing pulse outputs shall come true for their respective pulse width.
- (b) Wait until the Computer Reset line comes true, then return to the beginning of the program and test the three mode lines to determine the proper mode for the next operating sequence.
- (c) If the Computer Reset line does not come true within 10 ± 1 sec after the first keying pulse, then return to the beginning of the program.

NOTE

If the Computer Reset line comes true less than 1 sec after the 1 ms timing pulse is true, the sequence of the unit shall operate the 1 ms and 85 us pulses at a 1 sec rate as defined by step C (a).

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8. 512.5 ms Timer Characteristics

The 512.5 ms timer shall have provisions for system adjustment to within 0.5 ms of the correct timing. This adjustable resistor will be packaged by Autonetics adjacent to the Network Timing Unit module.

9. Power Supply Requirements

+25 v dc $\pm 2\%$, 200 ma ^{MAX.} minimum current capability, with peak-to-peak ripple less than 50 mv. Source impedance less than 1 ohm.

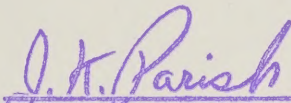
10. Environmental Conditions

Operating temperature: 15 to 45°C

Storage temperature range: -10 to 75°C

11. Packaging

The Network Timing Unit shall be a hermetically sealed unit designed for mounting on an etched circuit board. The unit shall be secured in place by at least two inserts. The pin layout shall be designed so that the unit cannot be mounted incorrectly. Feet with a minimum height of 0.06 inches shall be located on the bottom of the package. The maximum height of the unit, including feet, shall be less than 31/32 of an inch. The volume of the unit shall be less than four square inches.


J. K. Parish
Subsystem Engineer
Sonar Simulator/Stimulator
Systems & Support Unit

JKP:pma

Distribution: D. Clark, Jr. D/245-5 B/72 ANA
T. T. Ota *cto.*
W. W. Sloan
E. L. Bailey
J. T. Azama

D. S. Johnson D/246-6 B/231 ANA

8. 512.5 ms Timing Characteristics

The 512.5 ms timer shall have provisions for system adjustment to within 0.5 ms of the correct timing. This adjustable resistor will be packaged by Automatics adjacent to the Network Timing Unit module.

9. Power Supply Requirements

+25 v dc \pm 2%, 200 ma minimum current capability, with peak-to-peak ripple less than 20 mv. Source impedance less than 1 ohm.

10. Environmental Conditions

Operating temperature: 15 to 45°C
 Storage temperature range: -10 to 75°C

11. Packaging

The Network Timing Unit shall be a hermetically sealed unit designed for mounting on an etched circuit board. The unit shall be secured in place by at least two inserts. The pin layout shall be designed so that the unit cannot be mounted incorrectly. Feet with a minimum height of 0.06 inches shall be located on the bottom of the package. The maximum height of the unit, including feet, shall be less than 3 1/2 of an inch. The volume of the unit shall be less than four square inches.

J. K. Parish
 J. K. Parish
 Subsystem Engineer
 Sonar Simulator/Estimator
 Systems & Support Unit

JKP:pm

Distribution:
 D. Clark, Jr.
 T. T. Ota
 W. W. Sloan
 E. L. Bailey
 J. T. Azana
 D. S. Johnson
 W/245-2 B/75 ANA
 W/245-4 W/251 ANA